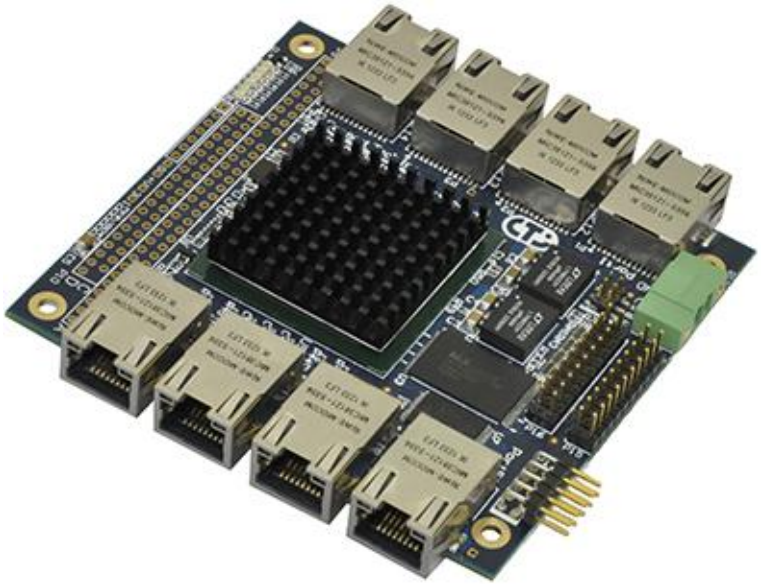
Connect Tech Inc.

Xtreme/GbE

Users Guide



Connect Tech Inc.
42 Arrow Road
Guelph, Ontario
N1K 1S6

Tel: 519-836-1291
Toll: 800-426-8979 (North America only)
Fax: 519-836-4878
Email: sales@connecttech.com
support@connecttech.com
Web: www.connecttech.com

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Customer Support Overview

If you experience difficulties after reading the manual and/or using the product, contact the Connect Tech reseller from which you purchased the product. In most cases the reseller can help you with product installation and difficulties.

In the event that the reseller is unable to resolve your problem, our highly qualified support staff can assist you. Our support section is available 24 hours a day, 7 days a week on our website at: www.connecttech.com/sub/support/support.asp. See the contact information section below for more information on how to contact us directly. Our technical support is always free.

Contact Information

Mail/Courier
Connect Tech Inc.
Technical Support
42 Arrow Road
Guelph, Ontario
Canada N1K 1S6

Email/Internet

sales@connecttech.com
support@connecttech.com
www.connecttech.com

Note:
Please go to the **Download Zone** or the **Knowledge Database** in the **Support Center** on the Connect Tech website for product manuals, installation guides, device driver software and technical tips. Submit your technical support questions to our customer support engineers via the **Support Center** on the Connect Tech website.

Telephone/Facsimile
Technical Support representatives are ready to answer your call Monday through Friday, from 8:30 a.m. to 5:00 p.m. Eastern Standard Time. Our numbers for calls are:

Toll Free: 800-426-8979 (North America only)
Telephone: 519-836-1291 (Live assistance available 8:30 a.m. to 5:00 p.m. EST, Monday to Friday)
Facsimile: 519-836-4878 (on-line 24 hours)

Limited Lifetime Warranty

Connect Tech Inc. provides a Lifetime Warranty for all Connect Tech Inc. products. Should this product, in Connect Tech Inc.'s opinion, fail to be in good working order during the warranty period, Connect Tech Inc. will, at its option, repair or replace this product at no charge, provided that the product has not been subjected to abuse, misuse, accident, disaster or non-Connect Tech Inc. authorized modification or repair.

You may obtain warranty service by delivering this product to an authorized Connect Tech Inc. business partner or to Connect Tech Inc. along with proof of purchase. Product returned to Connect Tech Inc. must be pre-authorized by Connect Tech Inc. with an RMA (Return Material Authorization) number marked on the outside of the package and sent prepaid, insured and packaged for safe shipment. Connect Tech Inc. will return this product by prepaid ground shipment service.

The Connect Tech Inc. Lifetime Warranty is defined as the serviceable life of the product. This is defined as the period during which all components are available. Should the product prove to be irreparable, Connect Tech Inc. reserves the right to substitute an equivalent product if available or to retract Lifetime Warranty if no replacement is available.

The above warranty is the only warranty authorized by Connect Tech Inc. Under no circumstances will Connect Tech Inc. be liable in any way for any damages, including any lost profits, lost savings or other incidental or consequential damages arising out of the use of, or inability to use, such product.

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Revision History

Revision	Date	Changes
0.00	06/27/2013	Original

Introduction

Connect Tech's Xtreme/GbE is a flexible, high performance 8-port Gigabit Ethernet Switch with advanced management capabilities. The Xtreme/GbE can be powered from a wide input voltage range of +5.5V to +36V making it ideal to sit as a standalone unit or to be integrated onto a small SBC. The Xtreme/GbE can have its management features controlled via web GUI interface or a CLI that can be accessed by an on-board RS-232 serial port or directly through the PCIe/104 bus on model # XDG003. With an extended operating temperature range of -40°C to +85°C, the Xtreme/GbE is ideally suited for rugged, severe environments.

ESD Warning

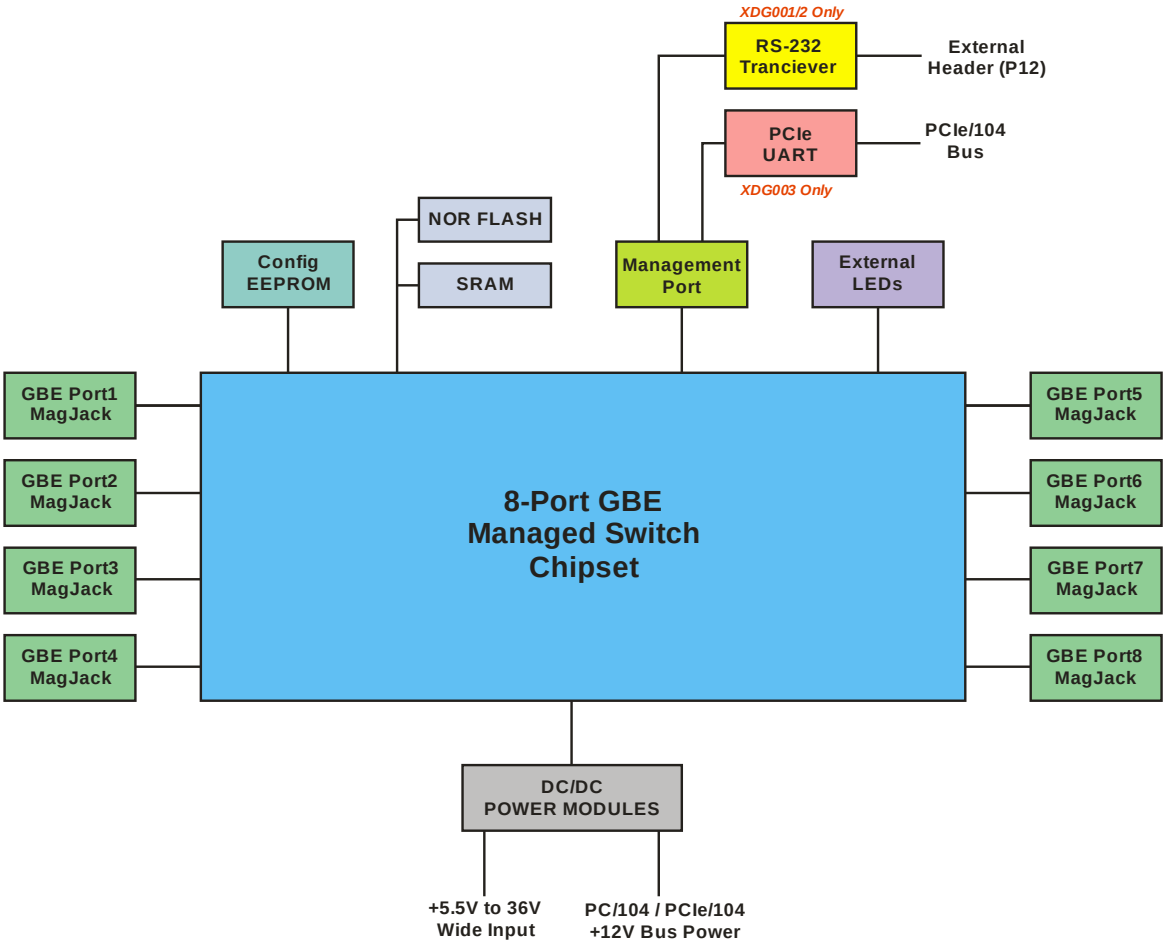
Electronic components and circuits are sensitive to ElectroStatic Discharge (ESD). When handling any circuit board assemblies including Connect Tech COM Express carrier assemblies, it is recommended that ESD safety precautions be observed. ESD safe best practices include, but are not limited to:

- Leaving circuit boards in their antistatic packaging until they are ready to be installed.
- Using a grounded wrist strap when handling circuit boards, at a minimum you should touch a grounded metal object to dissipate any static charge that may be present on you.
- Only handling circuit boards in ESD safe areas, which may include ESD floor and table mats, wrist strap stations and ESD safe lab coats.
- Avoiding handling circuit boards in carpeted areas.
- Try to handle the board by the edges, avoiding contact with components.

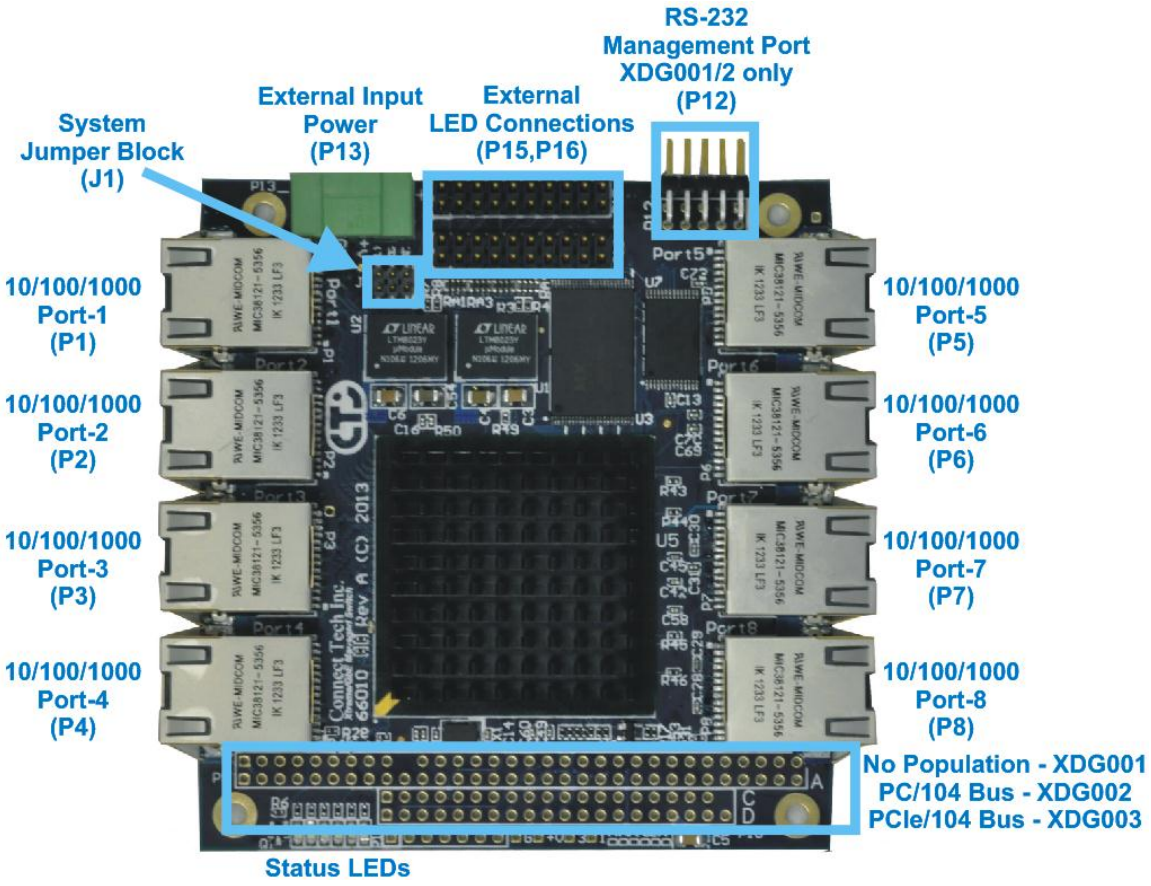
Product Features and Specifications

Specifications	
Ethernet Switch	Enhanced 8-Port Gigabit Ethernet Switch (Layer 2+) with integrated CPU for Management Capabilities
Ports	8 x 10/100/1000 Mbps (non-blocking)
Connectors	8 x Low Profile RJ-45
Management Interface Options	Web-managed Command Line Interface (CLI) • via RS-232 Serial Port on XDG001/2 • via PCIe/104 bus on XDG003
Frame Buffering	176KB (Jumbo frame support at all speeds)
DSCP	DSCP remarking for both IPv4 and IPv6 frames
Flow Control	Full-duplex (IEEE 802.3X) and half-duplex backpressure, symmetric and asymmetric
Protocol Support	IEEE 802.1D, IEEE 802.1s, and IEEE 802.1X
MAC Addresses	8k addresses
IP Multicast	8k IP multicast group support
VLANs	Up to 4000 (4k) VLANs supported
QoS	Programmable multilayer classifier with four QoS classes
Indicator LEDs	2 LEDs per port (available on RJ-45 and through external connector) 2 Power Rail LEDs 4 status LEDs
Standalone Operation	Switch can be used as a standalone unit or can be paired with an embedded SBC.
Input Voltage	Wide input rage: +5.5V to +36V DC
Power Consumption	3W Typical (6W Max)
Bus Interface	XDG001: no bus connector populated XDG002: PC/104 bus pass through (for sourcing power only) XDG003: PCIe/104 bus (sourcing power and management interface)
Dimensions	PC/104 compliant: 3.775” x 3.550”
Mechanical Information	Download 3D model here
Operating Temp	-40°C to +85°C
Warranty and Support	Lifetime Warranty and Free Technical Support

Block Diagram



Connector Locations



Part Number Shown: XDG001

Jumper and Connector Summary

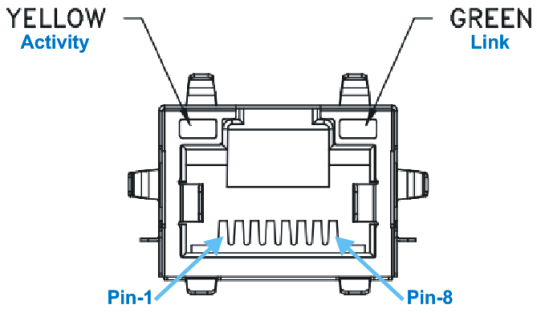
Designator	Connector	Description
P1- P8	RJ45	Low profile RJ45 ethernet connection
P9 – P10	PCIe/104	PCIe/104 top and bottom connectors on XDG003
P9 – P10	PC/104	PC/104 connectors on XDG002
P12	2x5 R/A 0.1”	2x5 R/A 0.1” serial port header for CLI interface. XDG001/002 only
P13	Phoenix 3.5mm	Phoenix 3.5mm Standalone DC power connector PN: 1843790
P14	JTAG	JTAG Debug Header
P15 – P16	2x10 0.1” header	2x10 0.1” header for external/remote Ethernet LEDs
J1	2x4 2mm header	System Jumper Block

Detailed Feature Pinouts and Descriptions

10/100/1000 Ethernet RJ Connector

Function	LAN Connector
Locations	P1-P8
Type	Standard 8 position RJ connector
Pinout	

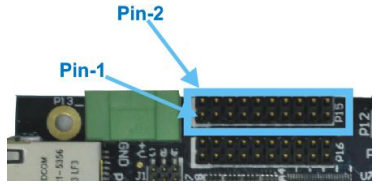
Pin	Signal
1	MX1P
2	MX1N
3	MX2P
6	MX2N
4	MX3P
5	MX3N
7	MX4P
8	MX4N

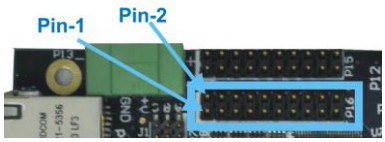


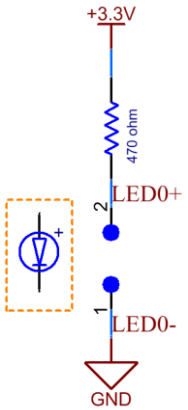
External LED Connectors

Function	External Port LEDs
Locations	P15
Type	2x10 0.1”mm pitch header
Pinout	

Pin	P15 Signal	P16 Signal
1	Port0 LED0 +	Port4 LED0 +
2	Port0 LED0 -	Port4 LED0 -
3	Port0 LED1 +	Port4 LED1 +
4	Port0 LED1 -	Port4 LED1 -
5	Port1 LED0 +	Port5 LED0 +
6	Port1 LED0 -	Port5 LED0 -
7	Port1 LED1 +	Port5 LED1 +
8	Port1 LED1 -	Port5 LED1 -
9	Port2 LED0 +	Port6 LED0 +
10	Port2 LED0 -	Port6 LED0 -
11	Port2 LED1 +	Port6 LED1 +
12	Port2 LED1 -	Port6 LED1 -
13	Port3 LED0 +	Port7 LED0 +
14	Port3 LED0 -	Port7 LED0 -
15	Port3 LED1 +	Port7 LED1 +
16	Port3 LED1 -	Port7 LED1 -
17	+3.3V	+3.3V
18	+3.3V	+3.3V
19	GND	GND
20	GND	GND





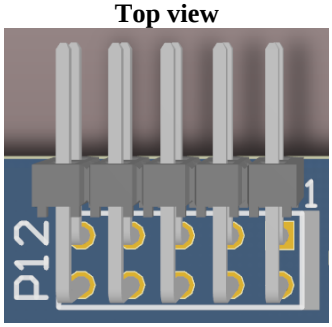


Serial Management Connector

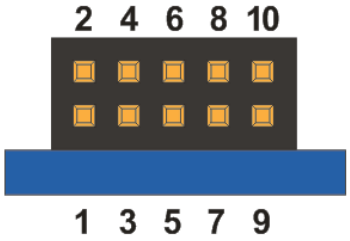
Function	Serial Management Connector ** only needed with XDG001/2. XDG003 maps management interface through PCIe/104 bus*
Locations	P12
Type	2x5 0.1" right angle header
Pinout	

Pin	Signal
1	-
2	-
3	RX
4	-
5	TX
6	-
7	-
8	-
9	GND
10	-

Top view



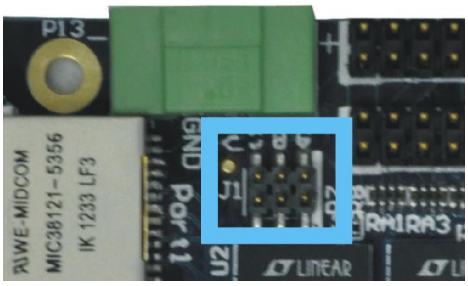
Side view looking at connector



System Jumper Block

Function	System Jumper Block
Locations	J1
Type	2x3 (or 2x4) 2mm pitch Jumper Block
Pinout	

Position	Description
A	Do Not Use
B	Must Always be Installed
C	RESET# ** a reset button can be connected to this location*
D	Do Not Use *(Not present on XDG001)*



PC/104 Connector (XDG002 Only)

Function	PC/104 Connector	
Locations	P9, P10	
Type	PC/104 Stacking Connector	
Pinout	Pinout compliant to PC/104 specification pinout. This connector is only used to source power for the board (+12V), all other pins will be pass-through. Visit http://www.pc104.org to download the specification free of charge.	** Shown uninstalled*

PCIe/104 Connector (XDG003 Only)

Function	PCIe/104 Connector	
Locations	P9	
Type	PCIe/104 Stacking Connector	
Pinout	Pinout compliant to PCIe/104 specification pinout v2.01. The Xtreme/GbE connects its management port to the x1 PCIe Link of the PCIe/104 bus (Type-1 or Type-2). The Xtreme/GbE also uses the +12V power rail from the PCIe/104 bus to power the board. Visit http://www.pc104.org to download the specification free of charge.	

Input Power

The Xtreme/GbE can be powered by an external 3.5mm pitch Phoenix style connector or via the PC/104 or PCIe/104 bus.

- Powering via the Phoenix style connector is called *standalone mode*
- Powering via the PC/104 connector is called *bus mode*

Standalone Power Requirements

Minimum Voltage	+5.5 VDC
Maximum Voltage	+36 VDC

Bus Mode Power Requirements

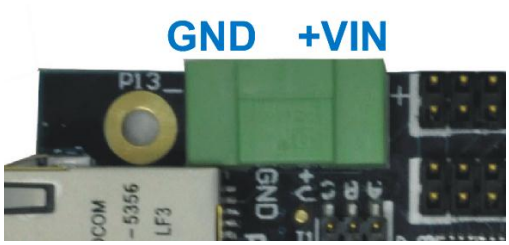
Bus Connector	Model Part Number	Voltage Rail used
PC/104 (ISA Bus)	XDG002	+12V
PCIe/104	XDG003	+12V

External Input Power Connector Details

Function	Main Input Power
Location	P13
Range	+5.5V to +36V
Type	2-pos 3.5mm pitch Phoenix style mating PN: 1847055
Pinout	

Pin	Signal	Description
1	+VIN	Power In
2	GND	Power Return

***DO NOT REVERSE POLARITY!**



Typical Current Consumption Details

Number of Ports connected at 1Gb	Input Voltage	Current (A)	Watts (W)
1	+12V	0.090	1.080
2	+12V	0.140	1.680
3	+12V	0.185	2.220
4	+12V	0.240	2.880
5	+12V	0.290	3.480
6	+12V	0.340	4.080
7	+12V	0.390	4.680
8	+12V	0.450	5.400

Feature Detailed Overviews

On-board PHY/MACs

Xtreme/GbE implements 8 separate low-power tri-speed Ethernet copper PHYs, providing support for full-duplex operation at 10/100/1000 Mbps and half-duplex operation at 10/100 Mbps. Xteme/GbE implements 8 separate tri-speed Ethernet MACs, which comply with IEEE Std 802.3-2002. The tri-speed MACs provide support for full-duplex operation at 10/100/1000 Mbps and half-duplex operation at 10/100 Mbps.

Quality of Service

Xtreme/GbE supports four QoS classes. On each port, an enhanced categorizer assigns priorities based on information taken from Layer 2 and Layer 3.
The categorizer analyzes all received frames. It assigns each frame to one of four QoS classes based on:

1. Port-based priority
2. User priority in the VLAN tag header (IEEE Std 802.1p)
3. Differentiated Services Code Point (DSCP) from the IP-header (IPv4 and IPv6 supported)

Based on the priority assigned by the categorizer, higher priority frames take precedence over lower priority frames during forwarding through the switching engine. In case of congestion, the lowest priority traffic is dropped before higher priority frames. In addition, the higher priority frames are able to overtake the lower priority frames in the queue, thereby minimizing latency for expedited data.

Congestion Control

The ingress and egress directions on all ports can be configured to manage network congestion independently, either by dropping frames or by flow control pause frame signaling.

Flow control is guaranteed non-dropping for frame sizes up to about 4 kilobytes. Asymmetric flow control is supported for both the ingress and egress direction. The internal FIFOs have enough memory to handle flow control on short-haul, full-duplex lines without using excessive pause signaling. The switch generates flow control pause frames, when necessary, to ensure that frames are never dropped.

In half-duplex mode, flow control is supported through back pressure.

In drop mode, Xtreme/GbE handles congestion situations by dropping frames intelligently according to bandwidth allocations, frame priorities, and available buffer capacity.

Xtreme/GbE features both strict priority-based forwarding and weighted-fairness forwarding, with guaranteed bandwidth allocation for the different QoS classes.

Frame Forwarding Analysis

The advanced filtering and forwarding capabilities in Xtreme/GbE are located in the analyzer module. The analyzer maintains and uses tables for frame forwarding: a source port table, a VLAN table, a MAC address table, and an aggregation mask table. When the frame header information has been extracted from an incoming frame, the analyzer uses these tables to look up the following information:

• 8-bit source port mask.
• 8-bit VLAN mask.
• 8-bit destination port mask, if the DMAC address is known. If the DMAC address is not known, the analyzer looks up a programmable flooding mask.
• 8-bit aggregation port mask reflecting the selected port within a link aggregation group.

These four masks are then combined by a bit-by-bit AND operation and forwarded to the arbiter as the next forwarding decision for the given source port.

By default, the four masks are set up under the following conditions:
• Frames received on a given port cannot be forwarded to that same port.
• There is no VLAN present (all ports are members of all VLANs).
• Frames to a given destination address are forwarded only to the port where the destination was learned.

The job of the arbiter is to optimize the transfer of frames on the internal frame bus from the ingress queue system to the egress queue system. The arbiter decision is based on extensive information, such as frame priorities, port queue fillings, and egress shaper states.

MAC Address Learning

When a frame is received, the source MAC address is looked up in the MAC address table. If the address is not registered, and it is not a multicast address, a new entry is created. If necessary, an entry is discarded to make room for the new one based on a “least recently used” algorithm.

Xtreme/GbE is capable of looking up and adding all incoming entries to the MAC table at maximum load, which is known as “wire-speed learning”. Wire-speed learning reduces flooding in the network.

VLAN Support

Xtreme/GbE can be configured as either VLAN unaware, behaving transparently toward VLAN-tagged frames, or as VLAN aware, where VLAN information is used in the forwarding decision. Xtreme/GbE can set up and maintain 4096 VLANs.

For a VLAN-aware switch, untagged frames are classified to a port specific, configurable VLAN identifier (VID). Frames that already have a VLAN tag when they are received are classified to the VID within the tag header in the frame.

VLAN-awareness (that is, tagging or untagging of frames) can be configured on a per-port basis. Each port can be configured to a set of ports to which it can forward, and thereby facilitate port-based VLANs. By default, all ports can forward to all other ports.

Xtreme/GbE supports both Independent and Shared VLAN Learning using Filter Identifiers (FID). An FID can be configured to a set of VIDs among which shared VLAN learning takes place. By default, independent VLAN learning is used

Provider Bridging

Xtreme/GbE supports multiple VLAN tags, known as Q-in-Q, or VLAN stacking, which enables service providers to aggregate numerous independent customer LANs into the MAN space. With Q-in-Q tagging, the need for global VLAN coordination between the LANs is eliminated. Because each LAN and MAN has its own space of VLANs, there should be no shortage of VLAN identifiers. Xtreme/GbE provides the following features:

• Each port can add or strip a VLAN tag (independently configurable for ingress and egress per port).
• Frame QoS class can be determined based on information in the outer VLAN tag.
• The frame can be forwarded, based on information in the outer VLAN tag.

The effective maximum frame size is 1526 bytes throughout the Q-in-Q network, because the standard end-station MTU of 1518 bytes may get two VLAN tags each, with 4 bytes inserted.

DSCP Remarking

Xtreme/GbE supports DSCP remarking, where the DSCP value in IPv4 or IPv6 packets is remarked to a new value based on the assigned frame QoS class. DSCP remarking is a key feature in making edge network equipment assign a QoS class that can be used throughout the network. DSCP remarking, combined with proper QoS settings, is a basic requirement to support quality VoIP applications reliably.

IP Multicast

Xtreme/GbE provides enhanced support for IP Multicast by allowing up to 8,192 programmable multicast groups to co-exist in the MAC table. This, in combination with IGMP snooping where IPMC membership information is passed on to the CPU, enables applications such as digital video distribution.

Flooding Storm Control

Xtreme/GbE features a flooding control system for constraining undesired behavior caused by, for example, loops in the network or denial-of-service attacks.

Advanced Management Interface

The management interface for the Xtreme/GbE can be accessed through a Command Line Interface via COM Port or through a web GUI interface.

CLI Management via the PCIe/104 Bus (XDG003)

The XDG003 model of the Xtreme/GbE product connects to the CLI management interface via the PCIe/104 bus. This serial port is generated from on-board PCIe UART the Exar 17V352.

Software Support for the PCI Express UART

Additional drivers will be needed to properly operate the additional serial port.
Drivers for this functionality can be found on Exar's website here:
http://www.exar.com/connectivity/uart-and-bridging-solutions/pcie-uarts/xr17v352

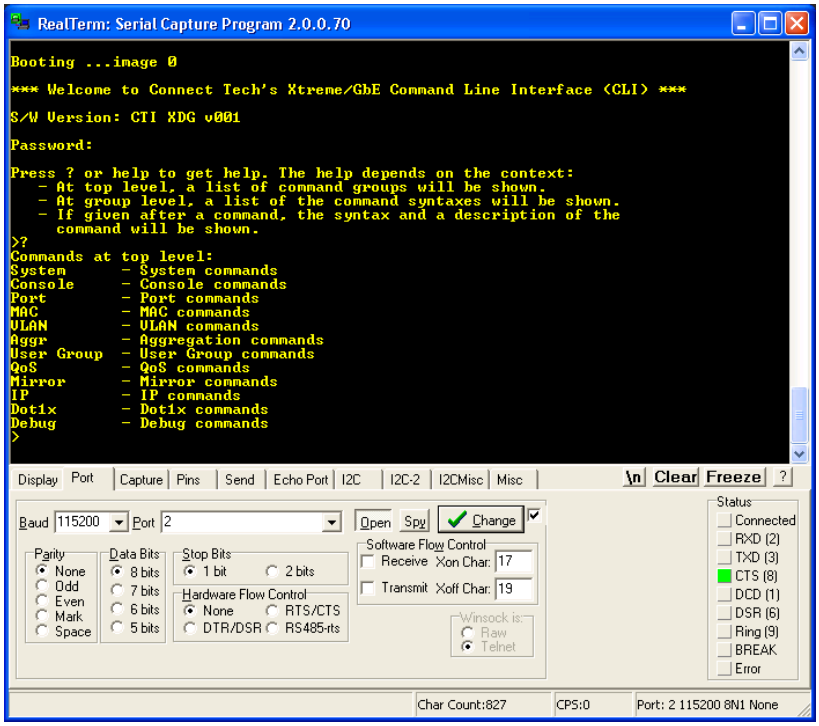
CLI Management via the External Serial Port (XDG001/2)

The XDG001/2 models of the Xtreme/GbE product has an external serial port connector (P12) which is used to access the CLI management interface.

Accessing the CLI Management Interface

To use the command line interface on the Xtreme/GbE must either connect the RS-232 external serial port (XDG001/2) or have the XDG003 running in a PCIe/104 bus. You must open the serial port in a terminal program such as: RealTerm, Putty, HyperTerminal, minicom, etc. The COM port must be set up to run with a baud rate of **115200, 8 data bits, 1 stop bit and no parity**.

Once opening the COM port attached to the management port, after boot up your terminal output should look like this. The default password is blank so hit <ENTER> to login and "?" will display a list of the available commands.


RealTerm: Serial Capture Program 2.0.0.70
Booting ...image 0
*** Welcome to Connect Tech's Xtreme/GbE Command Line Interface (CLI) ***
S/W Version: CTI XDG v001
Password:
Press ? or help to get help. The help depends on the context:
- At top level, a list of command groups will be shown.
- At group level, a list of the command syntaxes will be shown.
- If given after a command, the syntax and a description of the command will be shown.
>?
Commands at top level:
System - System commands
Console - Console commands
Port - Port commands
MAC - MAC commands
VLAN - VLAN commands
Aggr - Aggregation commands
User Group - User Group commands
QoS - QoS commands
Mirror - Mirror commands
IP - IP commands
Dot1x - Dot1x commands
Debug - Debug commands
>
Display Port Capture Pins Send Echo Port I2C I2C-2 I2CMisc Misc
\n Clear Freeze ?
Baud 115200 Port 2 Open Spy Change
Parity None Odd Even Mark Space
Data Bits 8 bits 7 bits 6 bits 5 bits
Stop Bits 1 bit 2 bits
Hardware Flow Control None RTS/CTS DTR/DSR RS485-rts
Software Flow Control Receive Xon Char: 17 Transmit Xoff Char: 19
Winsock is: Raw Telnet
Status Connected RXD (2) TXD (3) CTS (8) DCD (1) DSR (6) Ring (9) BREAK Error
Char Count:827 CPS:0 Port: 2 115200 8N1 None

Command Hierarchy

The CLI is hierarchical with two levels: a top level and a group level. The group level consists of the following groups:

System

Console

Port

MAC

VLAN

Aggregation

LACP

RSTP

User Group

QoS

Mirror

IP

Dot1X

IGMP

Filter

Debug

At top level you may enter a command by giving the full command string, including group, or you may change context into a group by entering the name of the group.

At group level you may enter commands for the particular group you have chosen without specifying the group name or you may return to the top level by entering the **up** command.

The current level and group is indicated by the prompt. If you are at the top level, the prompt will be:

>

If you are at group level, the prompt will display the actual group, e.g.

System>

At group level you also have the option of using the slash (/) key to refer to a context relative to the top level. E.g. you may be in the system group and enter a **/console/configuration** command or change context into the console group by entering **/console**.

Login/Logout Procedures

To get access to the CLI you must login by entering a password. You will automatically be queried about the password.

The password is configurable. The password check may be disabled by setting the password to an empty string “”, in which case any password entered during login will be accepted.

You may logout at any time and at any context level using the **exit** command.

Help Utility

You may get help by pressing the **?** key or entering **help**. The help info depends on the context:

- At top level, a list of command groups is displayed.
- At group level, a list of the command syntaxes for the current group is displayed.
- If the help command is issued for a specific command, the command syntax and a description of the command are shown.

Example

The command hierarchy and the help utility is demonstrated in the following example:

```
> ? <enter>
Commands at top level:
System       – System commands Consoleonsole commands
Port         – Port commands
MAC          - MAC table commands
VLAN         – VLAN commands
QoS          – QoS commands
Mirror       – Mirror commands
IP           – IP commands
Dot1x        – Dot1x commands
PoE          - Power Over Ethernet commands
IGMP         - IGMP Snooping commands
Filter       - Filter commands
Debug        - Debug commands

> console <enter>

Console> ? <enter>

Commands at Console level:

Console Configuration
Console Password [<password>]
Console Timeout [<timeout>]
Console Prompt [<prompt string>]
------
Up


Console> password ?
Syntax:
Console Password [<password>]
```

```
Description:
Set or display console password. The empty string ("") disables the
password check.

[<password>]: Password string of up to 16 characters. Console>
```

Entering Commands

- Commands are not case-sensitive.
- You may use the horizontal arrow-keys ← and → to move the cursor within the command you are entering.
- You may use the backspace key (provided you are using a terminal that sends the BS (8) character when the backspace key is pressed) to delete chars from the command you are entering.
- You may use the vertical arrow-keys ↑ and ↓ to scroll through a command history buffer of the latest 20 commands issued.
- If you are using a terminal (e.g. HyperTerminal) that supports <home> and <end> keys, you may use these keys to move the cursor to respectively the start of the command line and the end of the command line.

Terminology

The following table shows general parameter types used in command syntaxes and descriptions.

<port>	Port identifier: Any number in the range 1-8
<portlist>	Comma and/or dash separated port list. This type can be used for specifying individual ports or a range of ports. The keyword 'none' can be used to specify an empty port list. The keyword 'all' can be used to specify all ports. Example: 1,3,8-12
<macaddress>	MAC Address; format: "hh-hh-hh-hh-hh-hh", "hh:hh:hh:hh:hh:hh" or "hhhhhhhhhhhh". The hh is Hexadecimal number in the range 0x00 to 0xFF. Example: 00-00-24-F1-02-03
<vid>	VLAN ID: Decimal number in the range 1-4095. The keyword 'all' can be used to specify all VLAN IDs.
<vidlist>	Comma and/or dash separated VLAN ID list. This type can be used for specifying individual VLAN IDs or a range of VLAN IDs. The keyword 'none' can be used to specify an empty VLAN ID list. Example: 1,2,4-6
<UDP/TCP port>	UDP/TCP port number: Decimal number in the range 0-65535.
<rate>	Leaky bucket rate in Kbit/s [0-1000000k] or Mbit/s [0-1000m). Note! For Stapleford™ and Heathrow-III™ bucket rate is line-rate, i.e. sizes of interframe gap and preamble are included in the rate, whereas for Stansted™ and Elstree™ bucket rate is payload-rate, i.e. sizes of interframe gap and preamble are not included in the rate.
<class>	Internal class of service. The classes offered depend on the chip and the number of queues: 2 queues: low|high 4 queues: low|normal|medium|high
<grouplist>	Comma and/or dash separated user group list. This type can be used for specifying individual user groups or a range of user groups. The range is 1 to 8
<shared secret>	A text string, with the purpose to ensure integrity for communication between a RADIUS server and the 802.1X switch authenticator.

The <portlist> type is very useful when setting up multiple ports in the same mode. For example, the following commands will divide the ports into two untagged VLANs and enable VLAN awareness:

```
vlan add 1 1-4
vlan add 2 5-8
vlan pvid 1-4 1
vlan pvid 5-8 2
vlan aware all enable
```

Command Overview

```
?
Help Up Exit
System Configuration [all]
System Restore Default [keepIP]
System Name [<name>]
System Reboot
System SNMP [enable|disable]
System Trap [<IP Address>]
System Readcommunity [<community string>]
System Writecommunity [<community string>]
System Trapcommunity [<community string>]
Console Configuration
Console Password [<password>]
Console Timeout [<timeout>]
Port Configuration [<portlist>]
Port Mode [<portlist>] [<speed>]
Port Flow Control [<portlist>] [enable|disable]
Port State [<portlist>] [enable/disable]
Port MaxFrame [<portlist>] [<framesize>|reset]
Port Statistics [<portlist>] [clear]
Port VeriPHY [<portlist>] [full|anomaly|termination]
MAC Configuration
MAC Add <macaddress> <portlist>|none [<vid>]
MAC Delete <macaddress> [<vid>]
MAC Lookup <macaddress> [<vid>]
MAC table <vidlist>
MAC Flush
MAC Agetime [<agetime>]
VLAN Configuration [<portlist>]
```

```
VLAN Add <vidlist> [<portlist>]

VLAN Delete <vidlist>
VLAN Lookup <vidlist>
VLAN Aware [<portlist>] [enable|disable]

VLAN PVID [<portlist>] [<vid>|none]
VLAN Frame Type [<portlist>] [all|tagged] Aggr Configuration
Aggr Add <portlist> Aggr Delete <portlist> Aggr Lookup <portlist>
Aggr Mode [smac|dmac|xor]
User Group Configuration
User Group Add <grouplist> [<portlist>]

User Group Delete <grouplist>
User Group Lookup <grouplist>
QoS Configuration [<portlist>]
QoS Mode [<portlist>] [tag|iptos|port|diffserv|L4]
QoS Default [<portlist>] [low|high]
QoS Tagprio [<portlist>] [<tagpriolist>] [<class>]
QoS Tosprecedence [<portlist>] [<tosprecedencelist>] [<class>] QoS
DiffServ [<portlist>] [<dscplist>] [low|high]
QoS L4 Default [<portlist>] [<class>]
QoS L4 Match [<portlist>] [<class>]
QoS L4 Add [<portlist>] <UDP/TCP portlist>

QoS L4 Delete [<portlist>] <UDP/TCP portlist>

QoS L4 List [<portlist>]
QoS Userprio [<portlist>] [<tagprio>]
QoS Shaper [<portlist>] [enable|disable] [<rate>]

QoS Policer [<portlist>] [enable|disable] [<rate>]
QoS Storm Control [<portlist>] [enable|disable] [<rate>]
Mirror Configuration Mirror Port [<port>]
Mirror Source [<portlist>] [enable|disable]
IP Configuration
IP Setup [<ipaddress> [<ipmask> [<ipgateway>]]] [<vid>]

IP Mode [enable|disable]
IP ARP
IP DHCP [enable|disable]

Dot1x Configuration
Dot1x Mode [enable|disable]
Dot1x State [<portlist>] [Auto|ForceAuthorized|ForceUnauthorized]
```

```
Dot1x Server [<IP Address>]
Dot1x UDP Port [<value>]
Dot1x Secret [<Shared Secret>]
Dot1x Statistics [<portlist>]
Dot1x Reauthenticate [<portlist>] [now]
Dot1x Parameters [<parameter>] [<value>]
Debug Read Register <block> <subblock> <address>
Debug Write Register <block> <subblock> <address> <value>
Debug PHY Read <portlist> <address>
Debug PHY Write <portlist> <address> <value>
Debug Loopback [int|ext]
```

Detailed Command Description

Some of the commands have optional parameters. If the optional parameter is omitted, a default value may be used or the command may display the current setting (i.e. function as a get command).

Example 1, omitted parameter interpreted as display command:

```
Syntax:
System Name [<name>]

>system name <enter>
System Name: SuperSwitch-01
```

Example 2, omitted parameter interpreted as default value (VLAN ID 1):

```
Syntax:
MAC Add <macaddress> <portlist> [<vid>]

>mac add 010203ABCDEF 16 <enter>
```

The following sections list the individual commands by showing the syntax and a description of each command.

System Commands

System Configuration

Syntax:

System Configuration

[all] Description:

Show system name, software version, hardware version and management MAC address. Optionally show the full configuration

[all]: Show the total switch configuration (default: System configuration only).

System Restore Default

Syntax:

System Restore Default [keepIP]

Description:

Restore factory default configuration.

[keepIP]: Preserve IP configuration (default: Not preserved).

System Name

Syntax:

System Name [<name>]

Description:

Set or show the system name. The empty string (“”) clears the system name.

[<name>]: String of up to 16 characters (default: Show system name).

System Reboot

Syntax:

System

Reboot

Description:

Reboot the

switch.

System SNMP

Syntax:

System SNMP [enable|disable]

Description:

```
Activate or deactivate SNMP.
[enable|disable]: Enable/disable SNMP (default: Show SNMP mode).
```

System Trap

```
Syntax:
System Trap [<IP Address>]

Description:
Set or show SNMP traps destination.
[<IP Address>]: IP address to send traps to. 0.0.0.0 disables traps
(default: Show trap destination).
```

System Readcommunity

```
Syntax:
Readcommunity [<community string>]

Description:
Set or show SNMP read community string.

[<community string>]: New community string. (default: Show current
value).
```

System Writecommunity

```
Syntax:
Writecommunity [<community string>]

Description:
Set or show SNMP write community string.

[<community string>]: New community string. (default: Show current
value).
```

System Trapcommunity

```
Syntax:
Trapcommunity [<community string>]

Description:
Set or show SNMP trap community string.

[<community string>]: New community string. (default: Show current
value).
```

Console Commands

Console Configuration

Syntax:

Console

Configuration

Description:

Show configured console password and timeout.

Console Password

Syntax:

Console Password [<password>]

Description:

Set or show the console password. The empty string (“”) disables the password check.

[<password>]: Password string of up to 16 characters.

Console Timeout

Syntax:

Console Timeout [<timeout>]

Description:

Set or show the console inactivity timeout in seconds. The value zero disables timeout.

[<timeout>]: Timeout value in seconds, 0, 60-10000.

Console Prompt

Syntax:

Console Prompt [<prompt_string>]

Description:

Set or show the console prompt string. The empty string (“”) clears the prompt string.

[<prompt_string>]: Command prompt string of up to 10 characters.

Port Commands

Port Configuration

Syntax:

Port Configuration [<portlist>]

Description:

Show the configured and current speed, duplex mode, flow control mode and state for the port.

<portlist>: Port list (Default: All ports).

Port Mode

Syntax:

Port Mode [<portlist>] [<mode>]

Description:

Set or show the speed and duplex mode for the port.

<portlist>: Port list (Default: All ports).

<mode> : Port speed and duplex mode (Default: Show configured and current mode).

10hdx : 10 Mbit/s, half

duplex. 10fdx : 10 Mbit/s, full

duplex. 100hdx : 100 Mbit/s, half

duplex. 100fdx : 100 Mbit/s, full

duplex. 1000fdx: 1 Gbit/s, full duplex.

auto : Auto negotiation of speed and duplex.

Port Flow Control

Syntax:

Port Flow Control [<portlist>] [enable|disable]

Description:

Set or show flow control mode for the port.

<portlist> : Port list (default: All ports).

[enable|disable]: Enable/disable flow control (default: Show flow control mode).

Port State

Syntax:

Port State [<portlist>] [enable/disable]

Description:

Set or show the state for the port.

<portlist> : Port list (default: All ports).

[enable|disable]: Enable or disable port state (default: Show state).

Port MaxFrame

Syntax:

Port MaxFrame [<portlist>] [<framesize>|reset]

Description:

Set or show the maximum frame size in bytes (including FCS) for frames received on the port. Tagged frames are allowed to be 4 bytes longer than the maximum frame size. Use the reset option to return to the default setting.

[<portlist>] : Port list (default: All ports).

[<framesize>|reset]: Maximum frame size or reset to 1518 bytes

(default:
Show maximum frame size).

Port Statistics

Syntax:

Port Statistics [<portlist>] [clear]

Description:

Show or clear statistics for the port.

<portlist>: Port list (default: All ports).

[clear] : Clear port statistics (default: Show statistics).

MAC Table Commands

MAC Configuration

```
Syntax:
MAC Configuration

Description:
Show the permanently stored MAC table and the MAC ageing timer.
```

MAC Add

```
Syntax:
MAC Add <macaddress> <portlist>|none
[<vid>] Description:
Add a static MAC address table entry and VLAN ID on ports.

<macaddress>: MAC address, 12-digit hex string, optionally separated
with dashes or colons (e.g. 010203ABCDEF or 01-02-03-AB-CD-EF or
01:02:03:AB:CD:EF).
<portlist>   : Port list. Use ”none” to specify no
ports. [<vid>]    : VLAN ID, 1-4095 (default: 1).
```

MAC Delete

```
Syntax:
MAC Delete <macaddress> [<vid>]

Description:
Delete MAC address and VLAN ID.

<macaddress>: MAC address, 12-digit hex string, optionally separated
with dashes or colons (e.g. 010203ABCDEF or 01-02-03-AB-CD-EF or
01:02:03:AB:CD:EF).
[<vid>]      : VLAN ID (default: 1).
```

MAC Lookup

Syntax:

MAC Lookup <macaddress> [<vid>]

Description:

Lookup MAC address and VLAN ID.

<macaddress>: MAC address, 12-digit hex string, optionally separated with dashes or colons (e.g. 010203ABCDEF or 01-02-03-AB-CD-EF or 01:02:03:AB:CD:EF).

[<vid>] : VLAN ID, 1-4095 (default: 1).

MAC Table

Syntax:

MAC Table <vidlist>

Description:

Show MAC table for the VLAN Ids specified. Since the list can be very long, only the first 20 entries are shown.

<vidlist> : VLAN ID list.

MAC Flush

Syntax: MAC Flush

Description:

Removes non-static MAC address table entries.

MAC Age Time

Syntax:

MAC Agetime [<agetime>]

Description:

Set or show the MAC age timer in seconds. The value zero disables

ageing. [<agetime>]: Age timer in seconds, 0 or 10-65535 (default:

Show timer).

VLAN Commands

VLAN Configuration

Syntax:

VLAN Configuration [<portlist>]

Description:

Show the VLAN aware mode, port VLAN ID and accepted frame type for the port and the permanently stored VLAN table.

[<portlist>]: Port list (default: All ports).

VLAN Add

Syntax:

VLAN Add <vidlist> [<portlist>]

Description:

Add VLAN entry and include ports in member set.

<vidlist> : VLAN ID list.

[<portlist>]: Port list (default: All ports).

VLAN Delete

Syntax:

VLAN Delete <vidlist>

Description:

Delete VLAN entry (all ports excluded from member set).

<vidlist> : VLAN ID list.

VLAN Lookup

Syntax:

VLAN Lookup <vidlist>

Description:

Lookup VLAN entry and show port list.

<vidlist> : VLAN ID list.

VLAN Aware

Syntax:

VLAN Aware [<portlist>] [enable|disable]

Description:

Set or show the VLAN awareness mode for the port. VLAN aware ports will strip the VLAN tag from received frames and insert the tag in transmitted frames (except PVID). VLAN unaware ports will not strip the tag from received frames or insert the tag in transmitted frames.

[<portlist>]: Port list (default: All ports).

[enable|disable]: Enable/disable VLAN awareness (default: Show awareness).

VLAN PVID

Syntax:

VLAN PVID [<portlist>] [<vid>|none]

Description:

Set or show the port VLAN ID. Untagged frames received on the port will be classified to this VLAN ID. Frames classified to this VLAN ID will be sent untagged on the port.

[<portlist>]: Port list (default: All ports).

[<vid>|none]: Port VLAN ID, 1-4095 (default: Show

PVID).

The 'none' option can be used for trunk links.

VLAN Frame Type

Syntax:

VLAN Frame Type [<portlist>] [all|tagged]

Description:

Set or show the accepted frame type for the port.

[<portlist>]: Port list (default: All ports).

[all|tagged]: Accept all or only tagged (default: Show frame type).

User Group Commands

User groups provide another way than VLAN for making port grouping. With user groups it is possible to share a port between more user groups. An example on how to use user groups is given in chapter 3.5.

User Group Configuration

```
Syntax:
User Group Configuration

Description:
Show the user groups.
```

User Group Add

```
Syntax:
User Group Add <grouplist> [<portlist>]

Description:
Add user group entry including the ports.

<grouplist> : User group ID list.
[<portlist>]: Port list (default: All
ports).
```

User Group Delete

```
Syntax:
User Group Delete <grouplist>

Description:
Delete user group entry.

<grouplist>: User group ID list.
```

User Group Lookup

```
Syntax:
User Group Lookup <grouplist>

Description:
Lookup user group entry and show port members.

<groupist>: User group ID list.
```

QoS Commands

QoS Configuration

Syntax:

QoS Configuration [<portlist>]

Description:

Show the configured QoS mode, IP ToS Precedence priority mapping, VLAN user priority mapping, default priority, default VLAN user priority, L4 default priority, L4 match priority and UDP/TCP entries for the port.

[<portlist>] : Port list (default: All ports).

QoS Mode

Syntax:

QoS Mode [<portlist>] [tag|iptos|port|diffserv|L4]

Description:

Set or show the priority mode for the port.

[<portlist>] : Port list (default: All ports).

[tag|iptos|diffserv|L4]: Enable tag, IP ToS, IP differentiated services or L4 priority for the port (default: Show mode).

Constraints:

Parameter diffserv is not applicable for Heathrow-II™.

Parameter port is only applicable for SparX-G8™ and

SparX-G5™.

Parameters iptos and L4 are not applicable for SparX-G8™ and SparX-G5™.

QoS Default

Syntax:

QoS Default [<portlist>] [<class>]

Description:

Set or show the default class. In tag mode, the default class is used for untagged frames. In port mode, the default class is used as the port priority. In the other modes, the default class is used for non-IP frames and IP frames with options.

[<portlist>]: Port list (default: All ports).

[<class>] : Internal class of service (default: Show class).

QoS Tagprio

```
Syntax:
QoS Tagprio [<portlist>] [<tagpriolist>] [<class>]

Description:
Set or show the VLAN user priority mapping.

[<portlist>]    : Port list (default: All ports).
[<tagpriolist>]: VLAN user priority list, 0-7 (default:
All user
              priorities).
[<class>]       : Internal class of service (default: Show class).
```

QoS DiffServ

```
Syntax:
QoS DiffServ [<dscplist>] [<class>]

Description:
Set or show the IP Differentiated Services mapping.

[<dscplist>]: IP DSCP list, 0-63 (default: All DSCP
values). [<class>]: Internal class of service (default:
Show class). Constraint:
SparX-G8/G5™ only takes a single DSCP number as parameter instead of a
DSCP list.
```

QoS Userprio

```
Syntax:
QoS Userprio [<portlist>] [<tagprio>]

Description:
Set or show the default VLAN user priority for received untagged frames.

[<portlist>]: Port list (default: All ports).
[<tagprio>] : VLAN tag user priority, 0-7 (default: Show user priority).
```

Mirror Commands

Mirror Configuration

```
Syntax:
Mirror Configuration

Description:
Show the mirror destination port and mirror mode for source ports.
```

Mirror Port

```
Syntax:
Mirror Port [<port>]

Description:
Set or show the mirror destination port.

[<port>]: Mirror destination port (default: Show mirror port).
```

Mirror Source

```
Syntax:
Mirror Source [<portlist>] [enable|disable]

Description:
Set or show the source port mirror mode.

[<portlist>]     : Source port list (default: All ports).
[enable|disable]: Enable/disable mirroring of frames received
on port
(default: Show mirror mode).
```

Debug Commands

Debug Read Register

```
Syntax:
Debug Read Register <block> [<subblock>] <address>

Description:
Read register address.

<block>    : Block identifier, 0-7 or 0x0-0x7.
<subblock>: Sub block identifier: 0-15 or 0x0-0xf.
<address> : Register address within block, 0-255 or 0x00-0xff.
```

Debug Write Register

```
Syntax:
Debug Write Register <block> <subblock> <address> <value>

Description:
Write value to register address.

<block>    : Block identifier, 0-7 or 0x0-0x7.
<subblock>: Sub block identifier: 0-15 or 0x0-0xf.
<address> : Register address within block, 0-255 or 0x00-0xff.
<value>    : Register value, 0-4294967295 or 0x00000000-0xffffffff.
```

Debug PHY Read

```
Syntax:
Debug PHY Read <portlist>

[<address>] Description:


Read PHY register for port.

<portlist> : Port list.
[<address>]: Register address, 0-31 or 0x00-0x1f (default: Read all
registers).
```

Debug PHY Write

```
Syntax:
Debug PHY Write <portlist> <address> <value>
```

```
Description:
Write value to PHY register for port.

<portlist>: Port list.
<address> : Register address, 0-31 or 0x00-0x1f.
<value>    : Register value to write, 0-65535 or 0x0000-0xffff.
```

Debug Loopback

```
Syntax:
Debug Loopback [int|ext]

Description:
Perform internal or external loopback test.

[int|ext]: Internal or external loopback (default: Internal).
```

IP Commands

The TFTP related commands in below are not supported by all versions. From 2.33, they are not supported anymore.

IP Configuration

```
Syntax:
IP Configuration

Description:
Show configured IP address, mask, gateway, VLAN ID and mode.
```

IP Setup

```
Syntax:
IP Setup [ipaddress> [<ipmask> [ipgateway>]]] [<vid>]

Description:
Set or show IP configuration.

[<ipaddress>]: IP address (default: Show IP configuration).
[<ipmask>]    : IP subnet mask (default: Subnet mask for address
class). [<ipgateway>]: Default IP gateway (default: 0.0.0.0).
[<vid>]       : VLAN ID, 1-4095 (default: 1).
```

IP Mode

```
Syntax:
IP Mode [enable|disable]

Description:
Activate or deactivate the IP configuration.
[enable|disable]: Enable/disable IP (default: Show IP
mode).
```

IP Ping

```
Syntax:
IP Ping [-n <count>][-w <timeout>] <ipaddress>

Description:
Ping the specified IP address.
[-n <count>]:    Number of echo requests to send (default: 1).
[-w <timeout>]: Timeout in seconds to wait for each reply (default: 2).
```

IP Arp

```
Syntax: IP Arp

Description:
Show the current content of the ARP table.
```

IP DHCP

```
Syntax:
IP Dhcp [enable|disable]

Description:
Activate or deactivate the DHCP Protocol.
[enable|disable]: Enable/disable DHCP (default: Show DHCP mode).
```

IP tftp

```
Syntax:
IP TFTP [enable|disable]

Description:
Activate or deactivate the TFTP protocol.

[enable|disable]: Enable/disable TFTP (default: Show TFTP mode).
```

IP tftpget

```
Syntax:
IP TFTPGET server-ip filename

Description:
Fetch file from server-ip via the TFTP protocol and store in
flash. The content of the file will determine if it is a
runtime image or a configuration file.

server-ip: IP address of TFTP-server
filename: Name of source file on TFTP-
server
```

IP tftpput

Syntax:

IP TFTPPUT config|image|backup server-ip filename

Description:

Send configuration, image or backup file to server-ip via the TFTP protocol.

config|image|backup: File contains configuration, runtime image or backup image

server-ip: IP address of TFTP-server

filename: Name of destination file on TFTP-server

Dot1X Commands

Dot1x Configuration

```
Syntax:
Dot1x

Configuration

Description:


Show current 802.1X configuration.
```

Dot1x Mode

```
Syntax:
Dot1x Mode [enable|disable]

Description:
Enable or disable 802.1X process for the switch.

[enable|disable]: new mode (default: Show current configuration).
```

Dot1x State

```
Dot1x State [<portlist>] [Auto|ForceAuthorized|ForceUnauthorized]

Description:
Set or show the 802.1X state for the port.

[<portlist>]     : Port list (default: All ports).
[Auto|ForceAuthorized|ForceUnauthorized]: Set 802.1X state for the
ports
(default: Show mode).
```

Dot1x Server

Syntax:

Dot1x Server [<IP Address>]

Description:

Set or show RADIUS server IP address.

[<IP Address>]: IP address of external RADIUS server. (default: Show current configuration)

Dot1x UDP Port

Syntax:

Dot1x UDP Port [<value>]

Description:

Set up UDP Port for the external RADIUS server.

[<value>]: The UDP port the RADIUS server listens to (default: Show current configuration).

Dot1x Secret

Dot1x Secret [<Shared Secret>]

Description:

Set or show the secret shared with the RADIUS server.

[<Shared Secret>]: Shared secret shared with external RADIUS server. (default: Show current configuration)

Dot1x Statistics

Syntax:

Dot1x Statistics [<portlist>]

Description:

Show 802.1X statistics for the port.

[<portlist>]: Port list (default: All ports).

Dot1x Reauthenticate

Syntax:

Dot1x Reauthenticate [<portlist>] [now]

Description:

Refresh (restart) 802.1X authentication process for the port by setting reAuthenticate TRUE.

[<portlist>]: Port list (default: All ports).

[now]: if specified, force re-authentication immediately.

Dot1x Parameters

Syntax:

Dot1X Parameters [<parameter>] [<value>]

Description:

Set up advanced 802.1X parameters.

[<parameter>]: Parameter to change.

[<value>]: New value for the given parameter.

Filter Commands

Filter Configuration

Syntax:

Filter Configuration [<portlist>]

Description:

Show the configured valid IP address and DHCP server filter for the port.

[<portlist>]: Port list (Default: All ports).

Filter Source IP

Syntax:

Filter Source IP [<portlist>] [all|dhcp|<ipaddress> [<ipmask>]]

Description:

Set or show the valid source IP address for the port.

[<portlist>] : Port list (default: All ports).

[all|dhcp|<ipaddress> [<ipmask>]]: Allow all IP addresses, the IP address from DHCP or static IP address configuration (default: Show Filter source IP).

Filter DHCP Server

Syntax:

Filter DHCP Server [<portlist>] [allow|deny]

Description:

Set or show the DHCP server port.

[<portlist>]: Port list (default: All ports).

[allow|deny]: Enable or disable accepting DHCP reply frame on port (default: Show Filter DHCP Server).

Examples

VLAN configuration

This example shows how to configure two VLANs with the following setup:

VID 1 spans ports 2-8 and VID 2 spans ports 1-3, so port 2 and 3 are members of both VLANs and all 8 ports must be VLAN aware.

Port 1 is the access port for VID 2, so PVID of port 1 must be set to 2.

Port 2 is the trunk port for VID 1 and VID 2, so the PVID of port 2 must be set to 'none' and port 2 must be set to accept tagged frames only.

Port 3 is the hybrid port for VID 1 and VID 2, where VID 1 is the untagged VLAN, so PVID must be set to 1.

Ports 4-8 are access ports for VID 1.

The following CLI session does the above setup provided that the initial configuration is the default configuration:

```
>vlan

VLAN>delete 1VLAN>add 1 2-8

VLAN>add 2 1-3
VLAN>aware enable
VLAN>pvid 1 2
VLAN>pvid 2 none
VLAN>frame type 2 tagged
VLAN>conf
VLAN Configuration:
     Port  Aware    PVID  Frame Type
     1:    enabled  2     All
     2:    enabled  none  Tagged
     3:    enabled  1     All
     4:    enabled  1     All
     5:    enabled  1     All
     6:    enabled  1     All
     7:    enabled  1     All
     8:    enabled  1     All


Entries in permanent table:
1:          2,3,4,5,6,7,8
2:          1,2,3
VLAN>
```

User group configuration

This example shows how to configure two user groups, port 1+ port 2 and port 4+ port 5, with a common server, port 3.

The following CLI session does the above setup on a 8-port switch provided the initial configuration is the default configuration:

```
>user group              # Go to user group
level  User Group>delete 1    # Delete default
user group 1
User Group>add 2 1-3     # Create user group with
ports 1-3 User Group>add 3 3-5# Create user group
with ports 3-5
User Group>add 1 6-8     # Restore default group excluding ports 1-5
```

Accessing the Web Management Interface

There are two ways to access the web interface for first time use.

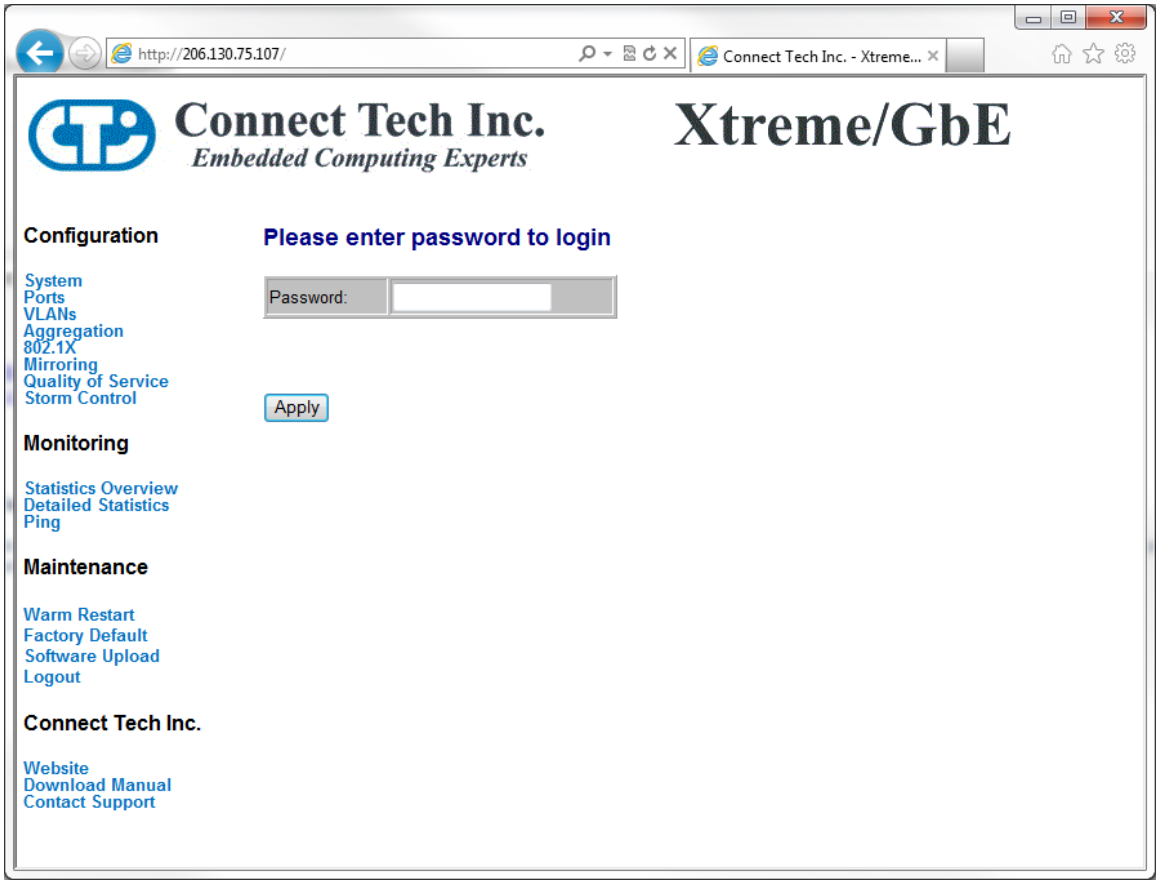
Method #1 - Using the default shipping IP
This method DOES NOT require having access to the CLI interface. By default the Xtreme/GbE will have an IP address of **192.168.42.1**, if you would like to connect to this address follow the steps below:

- Directly connect any port of Xtreme/GbE to your host PC using a standard Cat5e ethernet cable
- Setup your host PC's IP address to be on the same subnet as Xtreme/GbE (192.168.42.X)
- Open a web browser and go to the 192.168.42.1 address.
- Now you should see the login screen and from here you can setup the Xtreme/GbE to a IP address on your network.

Method #2 – Changing the Xtreme/GbE IP to one on your network
This method requires having access to the CLI interface through means of the external management serial port (on the XDG001/2) or the PCIe/104 bus (on the XDG003).

- Login to the CLI interface
- Type "ip setup xxx.xxx.xxx.xxx"
    - Where xxx.xxx.xxx.xxx is your new desired IP address
- Type "system reboot"
- Now connect Xtreme/GbE to any place on your network.
- Once the system is up simply go to address xxx.xxx.xxx.xxx in the web browser of your choice and you will see the login screen for the web interface

Login Screen of Web Management Interface



Factory Default Configuration

The factory default configuration is a VLAN unaware L2 switch with automatic learning/ageing and auto negotiation enabled on all ports:

- System: The system name string is empty.
- Console: The password string is empty and inactivity timeout is disabled. The prompt is ">".
- Port: All ports are enabled for auto negotiation and flow control is disabled. Max frame size is 1518.
- MAC table: The table is empty, auto learning and ageing is enabled. The ageing timer is 300 seconds.
- VLAN: Only VLAN 1 is present in the table and includes all ports. All ports are VLAN unaware with Port VLAN ID 1. All ports accept all frame types.
- User Groups: User group 1 exists and includes all ports.
- QoS: If supported, IP ToS Precedence priority is enabled and all Precedence values are given high priority, otherwise port mode is enabled. VLAN tag priorities will be set according to 802.1p. The UDP/TCP port list is empty. Default priority is high. Default user priority is 0. L4 default priority and match priority are low. All shaper and policers are disabled.
- Mirror: Mirroring is disabled.
- IP: IP mode is enabled and the default IP address is **192.168.42.1**
- IP: DHCP mode is disabled.
- SNMP: SNMP is enabled. Traps are disabled.
- Dot1X: 802.1X is disabled. All ports set to "Force Authorized"
- IGMP snooping (if available on switch device): Disabled in each defined VLAN

Below is the output of the >system configuration command

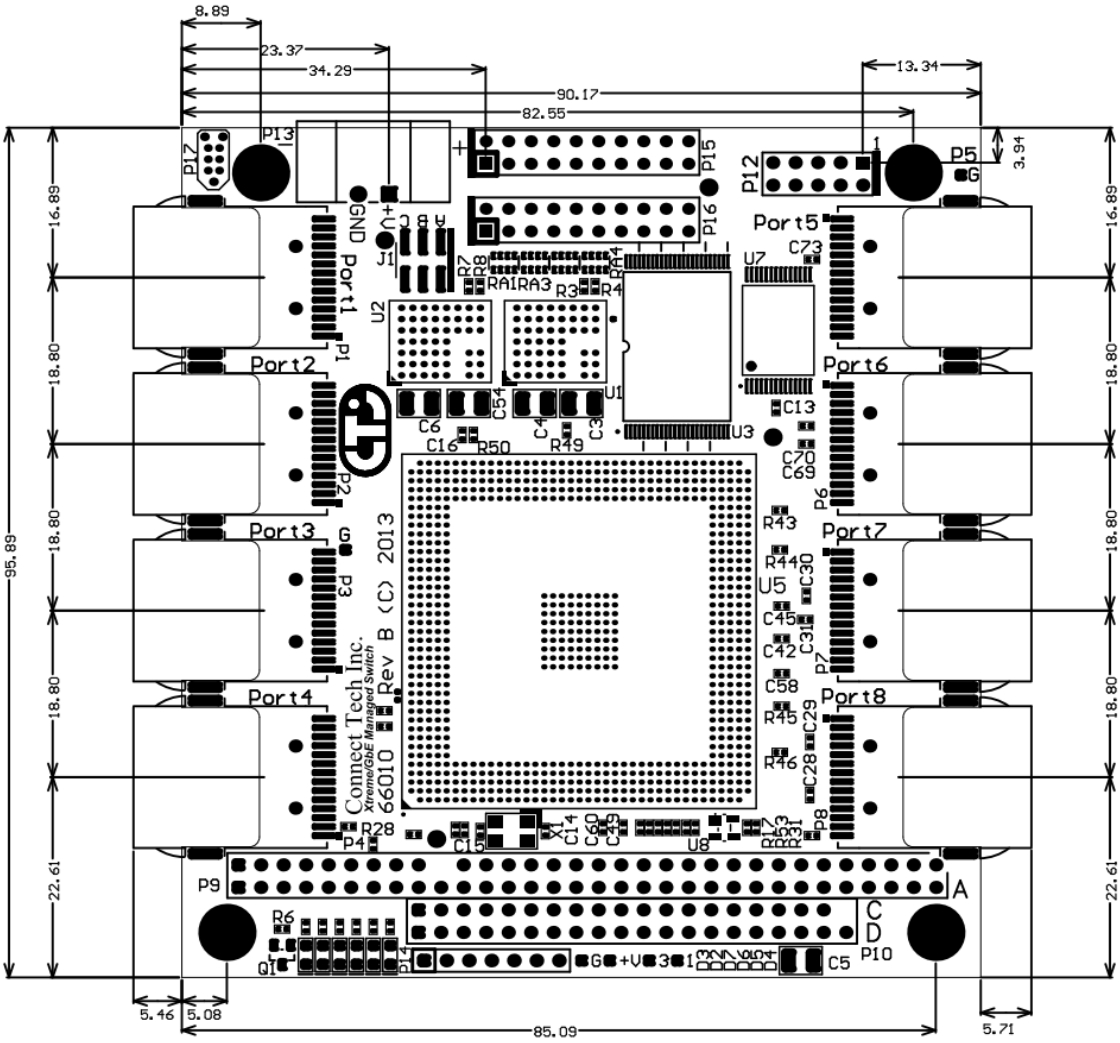
```
S/W Version: CTI XDG v001
    CVS Tag: sw_8051_2_33
    Compile Date: Jun 26 2013 09:52:47
    H/W Version: 1.0
    MAC address: 00-0c-8b-31-XX-XX
    SNMP:  enabled
    Trap IP: 0.0.0.0
    Readcommunity: public
    Writecommunity: private
    Trapcommunity: public
```

Note: The last 4 digits of the board MAC address should match the serial number of the Xtreme/GbE.

Mechanical Details

A complete **3D STEP Model** file of carrier board can be downloaded here:
http://www.connecttech.com/ftp/3d_models/XDG00X_3D_MODEL.zip

Below is a mechanical top down view of the Xtreme/GbE board. The one pictured below is the XDG001/2, the XDG003 will have all the same connector locations except for the PCIe/104 connector.



All dimensions are in millimeters.

Cables & Interconnect

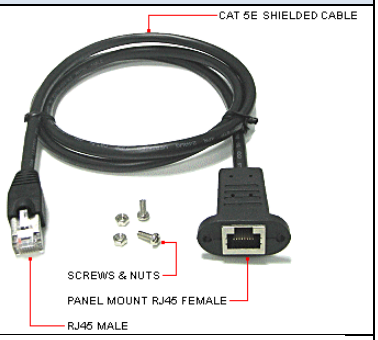
The Xtreme/GbE comes equipped with standard locking RJ-45 connectors, so out of the box no special external cabling is required. However Connect Tech does provide two cable kits options for:

- Use with industrial-type panel mount enclosures
- Use with Ruggedized MIL-Type IP68 installations

Cable Kit #1 – CKG012
Xtreme/GbE Industrial Panel Mount Cable Kit
This cable kit includes 8 x RJ-45 to Panel Mountable RJ-45 cables.

Cable Kit #2 – CKG013
Xtreme/GbE Ruggedized MIL Type IP68 Cable Kit
This cable kit includes 8 x RJ-45 to Ruggedized IP68 RJ-45 cables.

The following table summarizes provides further details on these cable kits.

CTI PN:	QTY	Cable Length	Mating Cable/Connector	Photo
CKG012	8	1ft / 0.305m	Standard RJ-45 Cat5e Cable	
CKG013	8	3.281ft / 1m	L-com PN: TRD8RG2-01 L-com PN: ECRA0211UB0	

Cable drawings are available upon request. Send an email request to: **support@connecttech.com**